

CLAIMS

1. A transmitter operable to communicate with a receiver via a wireless communication channel, wherein the transmitter comprises:
 - a processing subsystem; and
 - a transmitter subsystem coupled to the processing subsystem;wherein the processing subsystem is configured to cover an initial data stream to be transmitted on a first wireless communication channel with at least two different spreading codes; and
wherein the transmitter subsystem is configured to transmit a resulting final data stream on a first wireless communication channel.
2. The transmitter of claim 1, wherein the processing subsystem comprises a demultiplexer configured to demultiplex the initial data stream into a plurality of intermediate data streams.
3. The transmitter of claim 2, wherein the processing subsystem is configured to cover each of the intermediate data streams with one of a set of spreading codes, wherein the set of spreading codes includes the at least two different spreading codes.
4. The transmitter of claim 3, wherein the processing subsystem is configured to multiplex the intermediate data streams into the final data stream.
5. The transmitter of claim 1, wherein the spreading codes are different-length spreading codes.
6. The transmitter of claim 1, wherein the spreading codes are Walsh codes.
7. The transmitter of claim 6, wherein the spreading codes comprise + – and + + – – codes.
8. The transmitter of claim 1, wherein the initial data stream comprises a stream of symbols.

9. The transmitter of claim 1, wherein the transmitter comprises a component of a base station operable in a wireless communication system.
10. The transmitter of claim 1, wherein the transmitter comprises a component of a mobile station operable in a wireless communication system.
11. The transmitter of claim 1, wherein the processing subsystem is configured to cover an additional data stream to be transmitted on a second wireless communication channel with a single spreading code and wherein the transmitter subsystem is configured to transmit the resulting data stream on the second wireless communication channel, wherein the single spreading code is different than the at least two different spreading codes used to cover the initial data stream.
12. A receiver operable to communicate with a transmitter via a wireless communication channel, wherein the transmitter comprises:
 - a processing subsystem; and
 - a receiver subsystem coupled to the processing subsystem;wherein the receiver subsystem is configured to receive an initial data stream via a first wireless communication channel; and
wherein the processing subsystem is configured to decode the initial data stream using at least two different spreading codes.
13. The receiver of claim 12, wherein the processing subsystem comprises a demultiplexer configured to demultiplex the initial data stream into a plurality of intermediate data streams.
14. The receiver of claim 13, wherein the processing subsystem is configured to decode each of the intermediate data streams using one of a set of spreading codes, wherein the set of spreading codes includes the at least two different spreading codes.
15. The receiver of claim 14, wherein the processing subsystem is configured to multiplex the intermediate data streams into a decoded data stream.

16. The receiver of claim 12, wherein the spreading codes are different-length spreading codes.
17. The receiver of claim 12, wherein the spreading codes are Walsh codes.
18. The receiver of claim 17, wherein the spreading codes comprise $+-$ and $++--$ codes.
19. The receiver of claim 12, wherein the decoded data stream comprises a stream of symbols.
20. The receiver of claim 12, wherein the receiver comprises a component of a base station operable in a wireless communication system.
21. The receiver of claim 12, wherein the receiver comprises a component of a mobile station operable in a wireless communication system.
22. The receiver of claim 12, wherein the processing subsystem is configured to decode an additional data stream received via a second wireless communication channel with a single spreading code, wherein the single spreading code is different than the at least two different spreading codes used to decode the initial data stream.
23. A method for transmitting information via a wireless communication channel, comprising:
 - providing an initial data stream to be transmitted on a first wireless communication channel;
 - covering the initial data stream with at least two different spreading codes; and
 - transmitting a resulting final data stream on a first wireless communication channel.
24. The method of claim 23, further comprising demultiplexing the initial data stream into a plurality of intermediate data streams.

25. The method of claim 24, wherein covering the initial data stream with at least two different spreading codes comprises covering each of the intermediate data streams with one of a set of spreading codes, wherein the set of spreading codes includes the at least two different spreading codes.

26. The method of claim 25, further comprising multiplexing the intermediate data streams into the final data stream.

27. The method of claim 23, wherein the spreading codes are different-length spreading codes.

28. The method of claim 23, wherein the spreading codes are Walsh codes.

29. The method of claim 28, wherein the spreading codes comprise + - and + + - - codes.

30. The method of claim 23, wherein the initial data stream comprises a stream of symbols.

31. The method of claim 23, wherein the method is implemented in a base station operable in a wireless communication system.

32. The method of claim 23, wherein the method is implemented in a mobile station operable in a wireless communication system.

33. The method of claim 23, further comprising covering an additional data stream to be transmitted on a second wireless communication channel with a single spreading code and transmitting a corresponding data stream on the second wireless communication channel, wherein the single spreading code is different than the at least two different spreading codes used to cover the initial data stream.

34. A method for decoding information received via a wireless communication channel, comprising:

receiving an initial data stream via a first wireless communication channel; and
decoding the initial data stream using at least two different spreading codes.

35. The method of claim 34, further comprising demultiplexing the initial data stream into a plurality of intermediate data streams.

36. The method of claim 35, further comprising decoding each of the intermediate data streams using one of a set of spreading codes, wherein the set of spreading codes includes the at least two different spreading codes.

37. The method of claim 36, further comprising multiplexing the intermediate data streams into a decoded data stream.

38. The method of claim 34, wherein the spreading codes are different-length spreading codes.

39. The method of claim 34, wherein the spreading codes are Walsh codes.

40. The method of claim 39, wherein the spreading codes comprise + – and + + – – codes.

41. The method of claim 34, wherein the decoded data stream comprises a stream of symbols.

42. The method of claim 34, wherein the method is implemented in a base station operable in a wireless communication system.

43. The method of claim 34, wherein the method is implemented in a mobile station operable in a wireless communication system.

44. The method of claim 34, further comprising decoding an additional data stream received via a second wireless communication channel with a single spreading code, wherein the single spreading code is different than the at least two different spreading codes used to decode the initial data stream.